to Lacaille 5079, corresponding to a maximum, and at the same hour on September 30 it was inferior to *i* Muscæ, or very near a minimum. It is Lacaille 5236.

11. R Centauri. The light-curve appears to be irregular; a maximum of 6·1m. occurred about June 28, 1878, and one about August 3 in the preceding year; there would appear to be secondary maxima and minima. A period of 525 days with principal maximum April 18, 1871, and two intermediate maxima following the principal one by 197 and 378 days respectively, reconciles most of the observations, but is incompatible with estimates of 6m. made on June 25 and 26, 1874, with the meridian circle.

12. R Trianguli Australis. Varies between 6·6 and about 8·0 in 3d. 9h. 35m., the minima preceding the maxima by about 48 hours. Well-marked maxima occurred 1871, July 14, at 14h., and September 13 about midnight. Minima were observed 1871, July 12, at 14½h., and September 1 at 8½h. Good determinations were made in 1877, but are not printed in the *Uranometria;* the period 3d. 9h. 35m. is however deduced from a comparison of the observations in 1871 and 1877.

To these stars may be added S Puppis of Lacaille, which designation falls in with Argelander's (R.A. 7h. 43m. 6s., N.P.D. 137° 48′·3); it appears to fall nearly to the ninth magnitude, and to rise to about 7½, but has never been seen at Cordoba sufficiently bright to be admissible in Gould's Catalogue. It is Lacaille 2999.

Also Lacaille 2691 (L_2 Puppis), a red star varying from 3·6 to 6·3; Gould infers a period of about 135 days, with a variation rapid at the maximum and comparatively slow near the minimum, which apparently occurs about six days nearer to the preceding than the following maximum. Remarkably red near the minimum.

CERASKI'S NEW VARIABLE STAR.—Prof. Julius Schmidt, favoured by the fine sky of Athens, has already determined approximately the period of this star, which appears to be 4d. 23h. 35m.; he does not think it probable that this interval can be a multiple of a period. The star is in the same category as Algol, δ Libræ, V Coronæ, λ Tauri, and S Cancri, and is without colour. It may be well to note that for some time to come or until the latter part of December the minima will occur during daylight in this country; one of the first observable may be expected on December 24 about 17h. Greenwich time. The position of the star in the *Durchmusterung* is in R.A. 0h. 49m. 39s., Decl. + 81° 5′·6.

A NEW COMET.—The discovery of a faint comet by Mr. Lewis Swift is telegraphed from Washington; position August 11, apparently in about R.A. 172°, N.P.D. 22°.

GEOGRAPHICAL NOTES

DR. MATTEUCCI sends home some interesting details of the observations made by him in Kordofan during the march of the expedition under Prince Borghese. In Kordofan, he says, water is as dear as the wine of Barletta. In the rainy season however things are different; from June to September almost every inch of the country is covered with water, when, if one may not die of thirst, there is a chance of his dying of malaria. Vegetation along the line of march of the expedition was as melancholy and infertile as it could well be; stunted skeleton acacias alternating with a few euphorbias in constant monotony; neither mountains nor hills, and not even plains. In Kordofan the ground presents continuous undulations, no doubt in consequence of the geological formation of the soil, which is a bottom of sand slightly mixed with peroxide of iron. The water of the rainy season is husbanded in wells, but so valuable is it that the expedition had often to force the natives to give them access to these wells. Kordofan is about 600 metres above the level of the sea, and 380 above that of the Nile. Not a river, not a torrent, not a brook waters this immense territory, which is about 500 miles long and a little less broad. The mean temperature is not less than 92°. At the surface the ground is so sandy that animals on the march sink to a depth of 30 centimetres. The rains are irregular and never abundant. Some years ago there were no wells in Kordofan; the want of water was not felt, for the natives, in the rainy season, collected the water in large reservoirs, and a sufficient quantity was found in them at each station and village. But the seasons, even in Africa, tend to change. Eight years ago there was no rainy season in Kordofan, and for several months the people feared they would all die of thirst. Then they thought of digging wells, which gave very good results. Everywhere water was found at a depth of 20 inches. But things have sadly changed during the past eight years, and now, instead of finding water at a depth of 20 inches, it is often not found at a depth of 160 feet. In all the wells Dr. Matteucci found the following succession of strata:—From 50 to 30 metres of depth, sand with traces of sulphate of lime; above 30 extends the granite, with a great abundance of quartz in proportion to feldspath and mica. The granitic mass rarely exceeds one metre in thickness, and above is again found the sand.

BY letters from Senegal published in the French papers we learn that the survey of the country between the Senegal and the Niger is in progress. Three different topographical parties have been formed to determine the position of the intended ports and the route of railway intended to connect the two streams. The work must be quite finished by the month of May, 1881.

RECENT letters from Ladakh, according to the Indian papers, state that some Yarkand traders have arrived there, having accomplished the journey from Yarkand to Leh, a distance of 515 miles, in thirty-two days. These men report that they met Mr. Ney Elias, the well-known traveller, on the ascent of the Sasser Mountain. The Sasser Pass, which lies at an elevation of 17,500 feet, is nine stages distant from Leh, on the summer route to Yarkand, by way of the Karakoram. The traders also report that the road beyond the Sasser Pass was in good condition and free from snow early in May. They state that the Chinese are quietly established in Yarkand and Kashgar.

M. DE LA MOTTE has published as a quarto pamphlet the address which he delivered before the French Geographical Society on July 16, respecting his studies in the basins of the Niles. He has devoted several years to the subject, and has had a special map constructed to illustrate his researches on a scale of 1 : 1,200,000.

MESSRS. CASSELL, PETTER, AND GALPIN will publish at the end of September the first monthly part of Prof. Ebers' "Egypt: Descriptive, Historical, and Picturesque;" translated by Clara Bell, with notes by Dr. Birch, of the British Museum. The work will be profusely illustrated, and will occupy about three years in publication.

SCIENTIFIC SERIALS

THE *Journal of Anatomy and Physiology, Normal ana Pathological*, vol. xiv., part 4, July.—Dr. H. S. Wilson, on the rete mirabile of the narwhal (two plates).—W. J. Walsham, observations on the coronary veins of the stomach (a plate).—Note on the same, by Prof. Turner.—F. W. Bennett, a communication between the air-bladder and the cloaca in the herring.—Prof. M. Watson, the curvatores coccygis muscles of man.—Dr. G. A. Gibson, valvular hæmatoma (plate).—R. Maguire, a contribution to the pathology of macroglossia and hygroma (plate).—Dr. J. Dreschfeld, the changes in the spinal cord after amputation of limbs (plate).—Dr. B. C. Waller, the morbid anatomy of certain forms of post-scarlatina nephritis in relation to their bearing on the histogeny of granular kidney (plate).—Dr. J. G. Naismyth, the antagonism of opium and belladonna illustrated by a case of attempted suicide.—Dr. R. J. Anderson, on an astragalo-scaphoid bone in man.—Dr. Foulis, the mode of healing in wounds under antiseptic dressings.—Prof. M'Kendrick, the respiratory movements of fishes (plate).—G. B. Hones, some points in the anatomy of the porpoise (plate).—Prof. Turner on two masks and a skull from islands near New Guinea (plate).—Dr. D. Newman, the effect of certain anæsthetics on the pulmonary circulation.—H. Bendall, a new method of preserving the colour of tissues.—J. Macdonald Brown, variations in myology.—Dr. G. A. Gibson, anatomical and physiological notes.

Bulletin de l'Académie Royale des Sciences (de Belgique), No. 6.—On the application of the second principle of thermodynamics to the variations of potential energy of liquid surfaces, by M. Van der Mensbrugghe.—Structure of the ovary, ovulation, fecundation, and the first phases of development in Cheiroptera, by MM. Van Beneden and Julin.—An original Ctenides of Brazil found at Liége, by M. Van Beneden.—Account of a case of cestodic tuberculosis, with some observations on the eggs of *Tænia mediocanellata*, by the same.—Difference of appreciations of the apparent size of microscopic objects by different observers, by M. Montigny.

Brain, a Journal of Neurology for July, 1880, contains: Original articles, by Prof. J. C. Dalton, on the form and topographical relations of the *corpus striatum*.—R. P. Oglesby, on nystagmus (gives some very interesting facts relative to symptomatic nystagmus).—Dr. A. Waller, on muscular spasms, known as "tendon reflex."—Dr. J. Hughlings-Jackson, on right- or left-sided spasm at the onset of epileptic paroxysms, &c.—Dr. W. Ireland, on left-handedness.—With critical digests and notices of books, clinical cases, and several abstracts of British and foreign journals; among these latter a note by Allen Thomson on Prof. Carlo Giacomini's method of preserving the brain by chloride of zinc, alcohol and glycerine, which he thinks most valuable.

Rivista Scientifico-Industriale, No. 11, June 15.—Concentrated sulphuric acid is volatile at ordinary temperatures, by Prof. Marangoni.

No. 12, June 30.—On a new apparatus for collecting rain and atmospheric dust, by Prof. Sylvestri.—On the development of the *Forficula auricularia*, Linn., by Prof. Camerano.—Some experiments on the discharge in rarefied gas, by Prof. Righi.

SOCIETIES AND ACADEMIES

PARIS

Academy of Sciences, August 23.—M. Wurtz in the chair.—The following papers were read:—Meridian observations of small planets at the Greenwich and Paris observatories during the second quarter of 1880, communicated by M. Mouchez.—Distinctive character of the pulsation of the heart, according as the right or left ventricle is examined, by M. Marey. During a stoppage in respiration the right heart shows a diminution in amplitude of pulsations, owing to pulmonary resistance, while the left heart shows a slight increase. If through any influence lowering the arterial tension (such as muscular exercise, inhalation of nitrite of amyl, &c.), waves be produced in the aorta, these waves cause in the tracing of pressure of the left ventricle a bifurcation or trifurcation of the summit (according as two or three have occurred during systole). The right ventricle does not show these waves, unless in vestige, and by propagation from the neighbouring part.—Remarkable example of vertically-ascending lightning, by M. Trécul. This was during a storm on Aug. 19. The sparks appeared to come from some lightning conductors in the place. Some rose singly and disappeared at a small height, expanding into a magnificent, nearly circular flash, the light of which diminished from centre to circumference. In one case two luminous columns rose simultaneously and parallel, and at a certain height precipitated themselves against each other at a right angle.—The death of M. Godron, correspondent in botany, was announced.—The sun would act inductively on the earth even if its magnetic power were simply equal to that of our globe. Induction of the moon by the earth and diurnal lunar variation of terrestrial needles, by M. Quet. The induction of the earth by the sun could be insensible only if the magnetic power of the latter were much below that of the former, which is not probable. The induction of the moon due to its revolution round the earth produces an electromotive force twenty-one times less than that the effects of which are rendered sensible by an experiment made on the earth, and consequently is itself sensible. As the induction of the satellite by rotation of the earth is about twenty-seven times greater than the foregoing, the resultant will be a sensible force with sensible reaction on particular earth-currents, leading to a daily variation of needles according to lunar hours.—On the variations of the coefficient of dilatation of glass, by M. Crafts.—On tungstoboric acid, by M. Klein.—On the products of distillation of colophony, by M. Renard.—On the project of establishment of a station for hospitable purposes at the sources of the Ogöoue, by the French Committee of the African Association, by M. Mizon.

August 30.—M. Wurtz in the chair.—The following papers were read:—On *Vitis berlandieri*, a new species of American vine, by M. Planchon.—M. de Lesseps reported the proceedings at the inauguration of the statue to Denis Papin at Blois, on August 29 (when he represented the Academy).—On the dilatation and compressibility of gases under strong pressures, by M. Amagat. He gives a series of laws to which his researches have led.—Observations of a solar protuberance on August 30, 1880, by M. Thollon. A thin, very brilliant jet was observed (about 11 a.m.) to rise near the equator, and nearly at right angles to the sun's limb; its velocity was estimated at 35 km. per second, and its height 343,000 km. It rapidly attained prodigious dimensions, while its brightness diminished, especially near the base. About 1 p.m. it was hardly visible. Curiously, while the lower and middle part of the protuberance gave a deflection of the line C towards the violet, the summit presented a nearly equal deflection towards the red.—On the amylamines of inactive amylic alcohol, by Mr. Plimpton.—The star-fishes of the deep regions of the Gulf of Mexico, by M. Perrier. This is a study of star-fishes dredged by Mr. Alexander Agassiz on board the *Blake* in two consecutive years.—Influence of alkaline or acid media on Cephalopoda, by M. Yung. M. Richet's law regarding crayfish (that acid or basic liquids are not toxical in direct ratio of their acidity or basisity); M. Yung verifies for Cephalopoda. The latter are extremely sensitive to mineral acids. With 0·5 cc. sulphuric, nitric, hydrochloric, or oxalic acid in a vessel holding two litres of water, the respirations of four *Eledone moschata* were raised from twenty-four to numbers varying from thirty to fifty-six per minute. Double the quantity of acid was fatal, except in the case of oxalic acid. Of the other three sulphuric acid is least poisonous. Of the much less powerful organic acids, tannic acid acts most rapidly. The alkalies act in the order given by M. Richet. The action of ammonia is extremely rapid.—Influence of coloured lights on the development of animals, by M. Yung. He confirms for marine animals (at the Naples station) the results he formerly obtained with fresh-water animals. The development of eggs of *Loligo vulgaris* and *Sepia officinalis* is stimulated by violet and blue light, retarded by red and green. Yellow light in this respect comes nearest to white. Contrary to former results, the development, though retarded, is well accomplished in red and green vessels.—On the vaso-dilator nerves of the sides of the mouth, by MM. Dastre and Morat.—On a particular mode of asphyxia in poisoning by strychnine, by M. Richet. The asphyxia first relieved by artificial respiration, is due to two causes, viz. contraction of the tetanised respiratory muscles, and exhaustion of the nervous centres of respiration. But there is another asphyxia resulting from the enormous interstitial combustion in the tetanised muscles, shown by the dark hue of the blood. Hence the necessity of practising artificial respiration very energetically so long as there is convulsive tetanus, so as to replace the oxygen that has disappeared. Substances preventing tetanus (such as chloroform, alcohol, or curare) should also be introduced.—On the intensity of some phenomena of atmospheric electricity observed in the north of the Sahara, by M. Amat. Without insulating himself he could, by passing a pocket-comb through his hair or beard, produce sparks 0·05m. to 0·07m. in length. This was best in the evening after a long ride on the arid plains, in hot, dry weather. Horses present even more striking electrical phenomena in their tails, &c. The electricity liberated by the tails is positive. Man in direct communication with the ground does not show much accumulation of the electric fluid, and friction is necessary to develop it. The fluid accumulates much more on the horse, the horn of the hoofs acting as insulators.

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